

## **REMARKS**

### **I. Status of Claims**

Claims 19, 21-33, 35-45 were pending.

Claim 45 has been canceled.

Claims 19-26, 29-31, and 33-36 are rejected under 35 USC 103(a) as being unpatentable over Chang et al. (US 7,359,345 B1) in view of 3GPP TS 25.321, version 5.6.0 (3GPP).

Claim 45 is rejected under 35 USC 101 for being directed towards non-statutory matter.

Accordingly, claims 19, 21-33, and 35-44 are now pending. No claims have been amended.

### **II. Rejections under 35 U.S.C. § 101**

Because Applicant has canceled claim 45, the rejection of claim 45 under 35 U.S.C. 101 is moot.

### **III. Rejections under 35 USC § 103**

#### *A. Claims 19, 21-26, 29-31, and 36-44*

Although Applicant recognizes that an obviousness inquiry is an expansive and flexible one, the Office Action must nevertheless demonstrate a prima facie case of obviousness to reject Applicant's claims for obviousness under 35 U.S.C. § 103(a). "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." MPEP § 706.02(j) (*citing Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter.

1985)).

The present Office Action, however, fails to cite references that expressly or impliedly suggest the claimed invention and does not provide any line of reasoning as to why one skilled in the art would have found the claimed invention to have been obvious in light of the teachings of the references even though the references fail to expressly or impliedly suggest the claimed invention.

Specifically, the Office Action relies on section 8.2.1 of the 3GPP disclosing a claim element that it in fact does not.

To explain, the present Office Action admits that Chang “fails to clearly render sufficient support as to the inband signaling between a user terminal equipment (UE) and a respective UMTS base station (BS) a signaling transport block is introduced at the MAC layer level, wherein the signaling transport block comprises Buffer Status Report information signaling the data volume of the transport channel from the user terminal equipment (UE) to the UMTS base station (BS) at the MAC layer level,” as required by claim 19.

To overcome this deficiency, the present Office Action cites section 8.2.1 of the 3GPP. It is the Applicant’s understanding that this reference is cited to disclose the above element.

What section 8.2.1 of the 3GPP in fact discloses is communication between protocol layers on only the UE side through primitives. The MAC protocol layer has specific functionalities. In order to perform these functionalities, specific information is needed from other protocol layers. This information, communication between protocol layers on only the UE side, is not transmitted over the air interface. Indeed, section 9 of the 3GPP, which discloses in detail the elements of peer-to-peer communication (e.g., communication between a UE and a BS), is silent regarding transmitting primitives such as a buffer occupancy from the UE to a BS at the MAC layer level.

Thus the proposed combination would result in a UE that both transmits ACK/NACK messages via MAC signalling per the teachings of Chang and communicates between protocol layers on the UE side buffer occupancy via primitives, as is taught in section 8.2.1 of the 3GPP. Such a combination does not disclose inband signaling between a UE and a respective UMTS BS, wherein a signaling transport block is introduced at the MAC layer level, and the signaling transport block comprises Buffer Status Report information signaling the data volume of the transport channel from the UE to the UMTS BS at the MAC layer level, as required by claim 19.

Because the combination of Chang and the 3GPP fails to teach or suggest the limitations of claim 19, Applicants submit that the combination cannot support a prima facie case of obviousness against claim 19. Because the Office Action fails to establish a prima facie case of obviousness in rejecting claim 19, the rejection under 35 U.S.C. § 103 should be withdrawn.

Claims 21-26, 29-31, and 36-44 ultimately depend on claim 19. Accordingly, the rejections of claims 21-26, 29-31, and 36-44 should also be withdrawn.

#### *B. Claims 33 and 35*

The Office Action appears to rely only on Chang with respect to claim 33 and on the combination of Chang and 3GPP with respect to claim 35. For the reasons given below, it is believed that claim 33 as previously presented is patentable over the cited prior art, whether it is Chang taken alone, or Chang in combination with 3GPP.

Claim 33 includes a plurality of RRC functionalities, disposed in the form of at least one control and/or data processing means, transferred from the radio network control entity RNC to the base station. Chang, outside of its discussion of the prior art, fails to discuss

RRC functionalities or how such functionalities would be implemented in the context of Chang's disclosed method and systems.

The subject-matter of presently pending claim 33 supports an UTRAN protocol architecture with RRC functionality in the Base Station, so that radio resources can be managed closer to the air interface by inband signaling, but with higher layer functionalities. Consequently, reconfigurations of radio resources in the uplink and downlink can be carried out much more quickly and efficiently for a User Equipment. Hence, data transmission in the downlink and the uplink can be significantly improved in terms of transmission delay and data throughput.

In contrast thereto, according to Chang, the technique provided enables messaging between RLCs and/or MAC layers of Node B and UE, respectively, but is silent, outside of its discussion of the prior art, regarding RRC or other higher layer functions necessary for data transmission control. Chang would not disclose or suggest to person of ordinary skill in the art how to improve data transmission by allowing fast and efficient control of radio resources by implementing the control of radio resources on an RRC level in a Base Station.

For example, Chang discloses a packet communications system including a transmission apparatus and a reception apparatus, in which a signaling method between a MAC layer entity of the transmission apparatus and a MAC layer entity of the reception apparatus is provided. *Chang* at col. 6, lines 25-30. A technique is provided in Chang for enabling a message exchange between MAC-hs layers of a Node B and a User Equipment UE *Chang* at col. 6, lines 8-9.

In order to avoid a long time delay elapsing during communication between RLC arranged in the RNC and RLC arranged in the UE, Chang provides generating and transmitting control message in a MAC h-s by an RLC, wherein the RLC of the reception side analyzes this control message and performs necessary operations according to the results of the analysis. *Chang* at col. 5, line 60 - col. 6, line 9.

Claim 33 differs, in that it provides a communication system, wherein a plurality of RRC functionalities are disposed in the form of at least one control and/or data processing means transferred from the radio network control entity RNC to the base station (BS).

Some of these functions are, for example, reconfiguration of physical channels in the uplink and downlink; reconfiguration of transport formats and transport format combinations in the uplink and downlink; switching of the transport channel type, i.e. from common transport channels to dedicated transport channels and vice versa; and setting of the uplink  $SIR_{target}$  for fast performance control of dedicated physical channels.

In other words, according to presently pending claim 33, functions of RRC, which is part of the UMTS protocol stack and handles the control plane signaling of layer 3 between the UE and the UTRAN, are transferred to the Base Station. This means that, according to presently pending claim 33, functionalities of layer 3, namely functionalities of the Radio Resource Control layer, which conventionally belongs to the core network, and thus functionalities of a level above layer 2, are transferred to the Base Station.

In contrast, RLC- and MAC-hs-entities are implemented in layer 2. Chang discloses transmitting control message in a MAC h-s by an RLC and is silent as to utilizing RRC functionalities in the context of Chang's disclosed method and systems. That is, Chang does not disclose RRC functionality in a Base Station. Thus, Chang fails to disclose or suggest a plurality of RRC functionalities, disposed in the form of at least one control and/or data processing means, transferred from the radio network control entity RNC to the base station (BS), as required by claim 33.

Applicant submits that Chang, alone or in combination with 3GPP, cannot support a rejection of claim 33 under 35 USC § 103. Accordingly, Applicant requests that its rejection be withdrawn.


Claim 35 depends from claim 33, and is therefore patentable over Chang, alone or in combination with 3GPP, for at least the same reasons.

#### IV. Conclusion

In view of the foregoing remarks, Applicant respectfully requests reconsideration of this application and allowance of the pending claims. Because there are no longer any amendments to the claims, Applicant respectfully requests that the arguments submitted herewith be considered.

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Respectfully Submitted,

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